

SECTION 14

PAINTING; GENERAL

14-01 SCOPE: The work covered by this section of the specifications consists in furnishing all plant, labor, equipment, appliances, and materials, not furnished by the Government, and in performing all operations in connection with painting and finishing of all exterior and interior surfaces of the buildings exclusive of protective painting of metal surfaces, complete, in strict accordance with this section of the specifications and the applicable drawings, and subject to the terms and conditions of the contract.

14-02 APPLICABLE SPECIFICATIONS: The following Federal Specifications, of the issues listed below, but referred to thereafter by basic designations only, form a part of this specification.

TT-A-468a	Aluminum Pigment; Powder and Paste, for Paint
TT-C-595	Colors; (for) Ready-Mixed Paints
TT-D-651a	Drier; Paint, Liquid
TT-E-496	Enamel; Heat-Resisting (400 degrees F), Black
TT-E-506c	Enamel, Tints and White, Gloss, Interior
TT-E-508	Enamel; Interior, Semigloss, Tints and White
TT-E-543	Enamel-Undercoat; Interior, Tints and White
TT-O-356a	Oil; Flatting and Mixing (for Thinning White Lead-Paste and Similar Paste Paints).
TT-O-364	Oil; Linseed, Boiled
TT-O-369	Oil; Linseed, Raw
TT-P-21	Paint; Cement-Water, Powder, White and Tints (for Interior and Exterior Use)
TT-P-25a	Primer, Paint, Exterior (Undercoat for Wood, Ready-Mixed, White and Tints).
TT-P-51d	Paint; Oil, Interior, Flat, Wall, Tints and White
TT-P-56a	Paint; Primer-Sealer, (for) Plaster and Wall-board
TT-P-102	Paint (Titanium-Lead-Zinc and Oil, Exterior, Ready-Mixed, White and Light Tints)
TT-P-641b	Primer, Paint, Zinc Dust-Zinc Oxide (for Galvanized Surfaces).
TT-P-781a	Putty & Elastic Compound
TT-T-291a	Thinner; Paints, Volatile Mineral Spirits (Petroleum-Spirits).
TT-T-801	Turpentine; Gum Spirits and Wood (Steam Distilled and Sulphate) (For Use in Organic Coatings)
TT-T-806	Turpentine; Wood (Destructively-Distilled), (For Use in Organic Coatings)
TT-V-51a	Varnish; Asphalt
TT-V-81b	Varnish; Mixing, For Aluminum Paint
TT-V-121c	Varnish, Spar, Water-Resisting
TT-W-251b	White-Lead; Basic-Carbonate, Dry, Paste-In-Oil, and Semipaste Containing Volatile Thinner

14-03 GENERAL: The term "paint", as used herein, includes emulsions, enamels, paints, varnishes, fillers, and sealers. All paints, accessory materials and colors shall be subject to the approval of the Contracting Officer.

14-04 MATERIALS: Paint shall be well-ground, shall not settle badly, cake or thicken in the container, shall be readily broken with a paddle to a smooth consistency, and shall show easy brushing and covering properties. The paint shall be suitable for spraying when thinned with not more than 12 percent by volume of mineral spirits. All paint materials shall be delivered to the job in original, unbroken containers, with labels and tags intact.

a. Aluminum Paint shall consist of aluminum pigment conforming to Federal Specification TT-A-468, type II, class A, mixed with aluminum-paint varnish conforming to Federal Specification TT-V-81, type II, class B, in proportion of 2 pounds of pigment to 1 gallon of varnish.

b. Asphalt Varnish shall conform to Federal Specification TT-V-51.

c. Cement-Water Paint shall conform to Federal Specification TT-P-21, type and class as hereinafter specified. Type I shall be for interior painting and type II for exterior painting. Class B shall be used for painting concrete block, and for other open-textured surfaces where so directed by the Contracting Officer. Class A shall be used for all other surfaces. "COPROX" as manufactured by Coprox Sales, Inc., New York 20 N.Y. or approved equal will be acceptable.

d. Exterior Oil Paint shall conform to Federal Specification TT-P-102.

e. Enamel Undercoat shall conform to Federal Specification TT-E-543.

f. Heat-Resisting Black Enamel shall conform to Federal Specification TT-E-496.

g. Interior Enamel:

(1) Gloss enamel shall conform to Federal Specification TT-E-506.

(2) Semigloss enamel shall conform to Federal Specification TT-E-508.

h. Interior Oil Paint shall be wall-flat-finish paint conforming to Federal Specification TT-P-51.

i. Primer Paint:

(1) Exterior-primer paint shall conform to Federal Specification TT-P-25.

(2) Interior-Primer Sealer Paint shall conform to Federal Specification TT-T-56.

(3) Zinc Dust - Zinc Oxide Primer for galvanized metal surfaces shall conform to Federal Specification TT-P-641, type I.

j. Putty shall conform to Federal Specification TT-P-781.

k. Radiator paint shall consist of a mixture of one gallon of ready-mixed interior oil paint and one pint of gloss enamel.

l. Spar Varnish shall conform to Federal Specification TT-V-121.

m. Miscellaneous Paint Materials:

(1) Color Pigments shall be pure, nonfading, and finely ground.

(2) Drier Liquid shall conform to Federal Specification TT-D-651, type I, except that type II, shall be used with lead-free paint.

(3) Flatting and Mixing Oil shall conform to Federal Specification TT-O-356, class as required by the type of finish specified.

(4) Linseed Oil: Raw and boiled linseed oil shall conform to Federal Specification TT-O-369 and TT-O-364, respectively.

(5) Thinner for oil paint shall conform to Federal Specification TT-T-291, Grade 1.

(6) Turpentine shall conform to Federal Specification TT-T-801 or TT-T-806.

(7) White Lead shall conform to Federal Specification TT-W-251, type at the option of the Contractor, unless hereinafter specified.

(8) Zinc Oxide shall conform to Federal Specification TT-Z-301, American process or French process at the option of the Contractor, except that French process zinc oxide shall not be used in exterior paints.

14-05 MATERIAL REQUIREMENTS: Materials shall be furnished as specified in preceding paragraph and shall be the products of nationally known and approved paint manufacturers.

a. Primer and Finish Paint: Both primer and finish paint shall contain a fungicide. Phenol mercuric salicylate in the amount of one percent or mercuric chloride in the amount of 1.5 percent, based on the total weight of the paint, is acceptable.

b. Sealer:

(1) Primer Sealer: Primer sealer for plywood or wood shall be "Firzite" as manufactured by United States Plywood Corporation or approved equal, clear or white as required.

(2) Knot Sealer: Knot sealer shall be a colorless synthetic resin sealer, WP-578 (Western Pine Association), or approved equal.

c. Rust Inhibitive Washes: Rust inhibitive washes for sheet metal and other metal, when required, shall be as hereinafter specified.

14-06 SAMPLES AND TESTS: If paint materials are Contractor-furnished, samples of each type of paint and each color proposed for use shall be submitted to the Contracting Officer, and approval thereof received before the material represented by the sample is used on the project. Samples shall consist of 1 pint of each kind of paint, and 3 displays of each type and color of paint applied to wood strips 2 inches by 6 inches. Materials used to display paints shall be the same as that on which the paint is ultimately to be applied. The Contractor shall also submit authenticated reports of tests, chemical analyses and proofs of past performance of the materials proposed for use, as directed by the Contracting Officer. Test shall be in accordance with the requirements of Federal Specification TT-P-141b.

14-07 PREPARATION OF SURFACES AND APPLICATION OF PAINT:

a. General: Hardware, hardware accessories, plates, lighting fixtures and similar items in place prior to painting, shall be removed during painting operations and repositioned upon completion of each space, or shall be otherwise protected. Equipment adjacent to walls shall be disconnected by workmen skilled in these trades and moved to permit the wall surfaces to be painted, and following completion of painting, shall be replaced and reconnected. Except as otherwise specified, all surfaces to be painted shall be clean, smooth, dry, and free from dust and grit. All work shall be done in a workmanlike manner, leaving the finished surfaces free from drops, ridges, waves, laps, and brush marks. Except as specified or required for cement-water paints, paint shall be applied under dry and dust-free conditions and, unless otherwise approved by the Contracting Officer, shall not be applied when the temperature is below 50 degrees F., nor when the temperature is over 90 degrees F. All primer and intermediate coats of paint shall be unscarred and completely integral at the time of application of each succeeding coat. Each coat of paint shall have a slight variation of color to distinguish it from the preceding coat. Sufficient time shall be allowed between coats to ensure proper drying. Paints shall be thoroughly stirred and kept at a uniform consistency during application and shall not be thinned in excess of the printed directions of the manufacturer. All special directions or specifications of the manufacturer as to surface preparation, application of paint, and equipment thereof, shall be observed and complied with unless otherwise specified herein. Paint con-

tainers shall not be opened until required for use. Care shall be exercised during spraying to hold the nozzle sufficiently close to the surfaces being painted to avoid excessive evaporation of the volatile constituents and loss of material into the air, or the bridging over of crevices and corners. Spray equipment shall be equipped with mechanical agitators, pressure gages and pressure regulators. Nozzles shall be of proper size. Surfaces which have been cleaned, pretreated, and/or otherwise prepared for painting shall be primed as soon as practicable after such preparation has been completed, but in any event prior to deterioration of the prepared surface. Where painting on any type of surface has been commenced on any portion of the work, the complete painting operation, including priming and finishing coats, on that portion of the work, shall be completed as soon as practicable, without prolonged delays. At the time of application of each successive coat, undercoats shall be freed of dust, grease or any foreign matter, which might adversely affect intercoat adhesion, by means of air blast, solvent wiping or other approved means. Paint may be applied by brush except when, in the opinion of the Contracting Officer, brushing in any particular application would produce unsatisfactory results. Floors, roofs and other adjacent areas and installations shall be satisfactorily protected by drop cloths or other precautionary measures.

b. Concrete, Shotcrete and Masonry:

(1) To Receive Water-Cement Paint: Concrete, shotcrete and masonry surfaces shall be prepared by removing all dirt, dust, oil and grease stains, and efflorescence, and by roughening, when necessary, to provide good adhesion for the paint. Surfaces shall be thoroughly dampened with a fine spray of water before the application of paint. The interval between coats shall be not less than 24 hours, and the first coat shall be lightly dampened before the application of the second coat. The paint shall be applied with a stiff-bristle brush, and thoroughly worked into the surface to seal all pores, cracks, and voids. The paint shall be cured by wetting the surface between coats, and at intervals for a period of not less than 2 days after the application of the finish coat. Nails and similar exposed metal occurring in concrete, shotcrete or masonry surfaces shall be coated with shellac or oil paint before the cement-water paint is applied. Interior concrete and masonry shall be allowed to age at least 3 weeks before the application of paint.

(2) To Receive Oil Paint or Enamel: Concrete, shotcrete and masonry surfaces shall be prepared as specified above for such surfaces to receive cement-water paint. In addition, such surfaces shall be neutralized by the application of a solution of zinc sulphate mixed in the proportion of 2½ to 3 pounds to a gallon of water. After solution has dried, the precipitate shall be removed by brushing. No oil paint or enamel paint shall be applied until all alkali shall have been removed.

c. Metalwork: All metal surfaces specified to be painted shall be properly cleaned and prepared as hereinafter specified. Shop-primed metalwork shall be kept clean and free from corrosion following installation. Abraded surfaces shall be retouched prior to finish painting, using the same type of paint as the priming coat.

(1) Uncoated Ferrous Metal: Cleaning and priming of all uncoated ferrous metal, except high-temperature ferrous metal, is specified and included in the section entitled, "PAINTING; PROTECTIVE, ON METAL", followed by finish coats as hereinafter specified.

(2) Coated Ferrous Metal:

(a) Cleaning: Surfaces shall be properly cleaned and prepared so that the priming paint will bond well and adhere permanently thereto. Oil and grease shall be removed by washing the surface with turpentine, mineral spirits, or other hydrocarbon solvent.

(b) Rust-Inhibitive Wash: Surfaces to receive rust-inhibitive wash shall be treated with an approved aqueous zinc-phosphate or phosphate-chromate solution, correctly formulated to etch the metal and to form a dull gray coating of uniformly fine texture which will produce a rust-inhibitive surface receptive to the priming paint. The washes shall be of the cold-wash type or hot-dip type for factory application when practicable, formulated for the metal to which they will be applied, and shall be applied to clean, scale-free surfaces in accordance with the manufacturer's directions.

(c) Prime Coat: Galvanized ferrous metal shall be given a priming coat of zinc dust-zinc oxide paint followed by finish paints hereinafter specified.

(3) Non-Ferrous Metals (Copper, Bronze, and Brass):

(a) Cleaning: Surfaces shall be properly cleaned and prepared so that the priming paint will bond well and adhere permanently thereto. Oil and grease shall be entirely removed by washing the surfaces with turpentine or mineral spirits, then dried. After cleaning, the surfaces shall be slightly roughened by sanding lightly with every fine sand-paper.

(b) Painting: Body and finish coats shall be as hereinafter specified.

d. Plasterwork: Plasterwork shall be at least 2 months old and shall be thoroughly dry, clean, and free from dirt, loose plaster, and surface irregularities before paint is applied. Cracks and holes shall be repaired with patching plaster, properly keyed to the existing plaster, and sandpapered smooth. All plaster surfaces shall be tested for the presence of alkali, which, if present, shall be removed by a neutralizing solution consisting of $2\frac{1}{2}$ to 3 pounds of zinc sulphate dissolved in 1 gallon of water. After solution has dried, the precipitate shall be removed by brushing. No oil paint or enamel shall be applied until all alkali shall have been removed.

e. Woodwork: All millwork and all other woodwork, where required, shall be sandpapered before the application of the primer. Small, dry, seasoned knots shall be thoroughly cleaned and scraped, and shall be sealed with knot sealer hereinbefore specified. Large, open, unseasoned knots and all beads or streaks

of pitch shall be heated by a blow torch and then scraped off, or if the pitch is still soft, it shall be removed with mineral spirits or denatured alcohol. Resulting voids, if any, shall be filled with knot sealer hereinbefore specified. Nails shall be set. Nail holes and defects shall be face-puttied, and putty shall be tinted as required. Painting shall proceed only when, in the opinion of the Contracting Officer, the wood is satisfactorily dry. Top and bottom edges of doors and screens, after fittings, shall be given two coats of spar varnish.

(1) Priming: All millwork specified to be painted shall be primed on all sides before installation, with particular attention being given to the sealing of cross-grained surfaces. Woodwork other than millwork shall be primed on exposed surface only.

(2) Puttying: After the priming coat has been applied, nail holes, cracks and other depressions shall be filled flush with putty, colored to match the finish coat, and sandpapered smooth. Putty shall be dry before subsequent painting.

14-08 EXTERIOR PAINTING:

a. Woodwork: Exterior woodwork on buildings shall be painted one coat of exterior-primer paint and two finish coats of exterior oil paint. Exterior woodwork shall include all millwork, frames, doors, shutters, framing in screened porches and similar work. Top and bottom edges of doors, screens and shutters, after fitting, shall be given two coats of spar varnish.

b. Ferrous Metalwork (Not Galvanized) shall be given two coats of exterior oil paint over the protective paint to match the adjoining surface.

c. Ferrous Metalwork (Galvanized) shall be given two coats of exterior oil paint over the primer paint to match adjoining surface.

d. Non-Ferrous Metal (Copper, Bronze and Brass) shall be given one primer coat of aluminum paint followed by two coats of exterior oil paint to match adjoining surface.

e. Concrete, Shotcrete and Masonry Surfaces, noted to have finish "CWP", shall be given two coats of cement water paint.

14-09 INTERIOR PAINTING AND BASE COATS:

a. General: Interior areas noted on the drawings to be painted shall include all wood, metal, plaster, concrete, masonry and similar surfaces. Horizontal runs of overhead pipes, pipe covering, and ducts shall be painted the same colors as ceilings. Vertical pipes, pipe covering and ducts shall be painted the same colors as walls. Concealed piping shall be left unpainted.

b. Wood Surfaces, except surfaces to be given natural finish or other finish specified, shall be painted with one coat of primer sealer paint, followed by finish coats as hereinafter specified.

c. Metal Surfaces:

(1) Uncoated Ferrous Metal, except high-temperature ferrous metal, shall be cleaned and primed as hereinbefore specified, followed by finish coats as hereinafter specified.

(2) Galvanized Metal shall be cleaned and primed as hereinbefore specified, followed by finish coats as hereinafter specified.

d. Concrete, Plaster and Masonry Surfaces:

(1) Cement Water Paint Finish: Concrete, plaster and masonry surfaces, noted to have finish "CWP", shall be given two coats of cement water paint.

(2) Semigloss Enamel Finish: Concrete, plaster and masonry surfaces, noted to have finish "SGE", shall be given one coat of alkali-resistant primer followed by finish coats as hereinafter specified.

e. Exposed Cold-Water Piping in Building (except in pipe spaces, and similar unfinished spaces) shall be given two coats of paint. Paint shall be as specified for and shall match color of adjacent walls, or ceilings, or as directed by the Contracting Officer. Pipe hangers, supports, anchors, straps, strainers and other accessories shall be painted as specified for piping of which they are a part.

f. Uncovered Hot-Water Piping in rooms to be painted shall be given two coats of radiator paint of color to match adjacent surfaces.

g. Exposed Insulated Piping in Building (except in pipe spaces and similar unfinished spaces) shall be primed with a heavy coat of glue size, followed by two coats of interior paint to match adjacent wall or ceiling surfaces. There shall be added to the glue size and to each coat of paint a sufficient amount of a fungicidal agent to render the insulation mildewproof. The fungicidal agent shall be of a type which will not adversely affect the color, texture, or durability of the paint.

h. Exposed Conduits: Exposed conduits in finished spaces shall be painted 2 coats of same kind of paint used for adjacent surfaces or as directed by the Contracting Officer.

i. High-Temperature Ferrous Metals: High-temperature ferrous metals including boilers, breechings, induced draft fan housing and exposed surfaces of other boiler room equipment subjected to high temperatures, shall be given 2 coats of heat resisting black enamel on the exposed outside surfaces, and surfaces to be covered with insulation or concealed by subsequent construction shall be given 1 coat.

j. Factory-Painted (or-Enameled) Equipment: All surfaces of factory-painted or enameled equipment which have been damaged before, during, or after installation, shall be refinished, using the same type of paint or enamel, as directed by and to the satisfaction of the Contracting Officer.

k. Buried Piping: All steel piping and all exposed threads of galvanized piping, where run in or through concrete or masonry, or buried underground, shall be given one coat of an approved asphalt varnish.

14-10 INTERIOR FINISH COATS: In addition to the base coats hereinbefore specified, surfaces indicated on the finish schedule to have finish paint or enamel shall be finished as follows:

a. Oil Paint: Surfaces indicated to have oil paint finish shall be given coats of interior oil paint.

b. Semigloss Enamel: Surfaces indicated to have semigloss finish shall be one of enamel undercoat, one coat of semigloss enamel, sanded, and one coat of semigloss enamel.

c. Gloss Enamel: Surfaces indicated to have gloss enamel finish shall be given one coat of enamel undercoat, one coat of semigloss enamel, sanded, and one coat of gloss enamel.

d. Varnish Finish: Wood surfaces indicated to have varnish or special finish shall be stained to the approved shade and lightly sanded, followed by three coats of spar varnish, with the first two coats lightly sanded, and the third coat rubbed with FFF pumice stone and water followed by rubbing mineral oil to a smooth satin finish.

14-11 PAINTING SCHEDULE: The finish and color of any surfaces of the building not specified and/or not included in the schedule of room finishes, and not specifically excepted from the work shall be as determined by the Contracting Officer. Colors shall be as noted in the schedule of room finishes and shall conform to Federal Specification TT-C-595, unless otherwise specified or directed by the Contracting Officer. All colors shall conform to the color tone without regard to designation as gloss, semigloss or lusterless.

14-12 CLEANING: All cloths, cotton waste and other materials which might constitute a fire hazard shall be placed in metal containers or destroyed at the end of each work day. Upon completion of the painting operations, all staging, scaffolding and containers shall be removed from the site or destroyed in a manner approved by the Contracting Officer. Paint spots, oil or stains upon adjacent surfaces shall be removed and the entire job left clean and acceptable to the Contracting Officer.